

Technology Opportunity

Technology Transfer & Partnership Office

TOP3-00225

8- by 6-Foot Supersonic Wind Tunnel

Facility Description

The 8- by 6-Foot Supersonic Wind Tunnel is a world-class test facility that provides researchers the opportunity to explore the subsonic, transonic, and supersonic speed range. This facility supports research testing of advanced aircraft and launch vehicle concepts. It is NASA's only transonic propulsion wind tunnel, operating from Mach 0.25 to 2.0 and at very low speeds from 0 to Mach 0.1. It is equipped to accommodate aerodynamic (force and moment) and propulsion scale models.

Facility Benefits

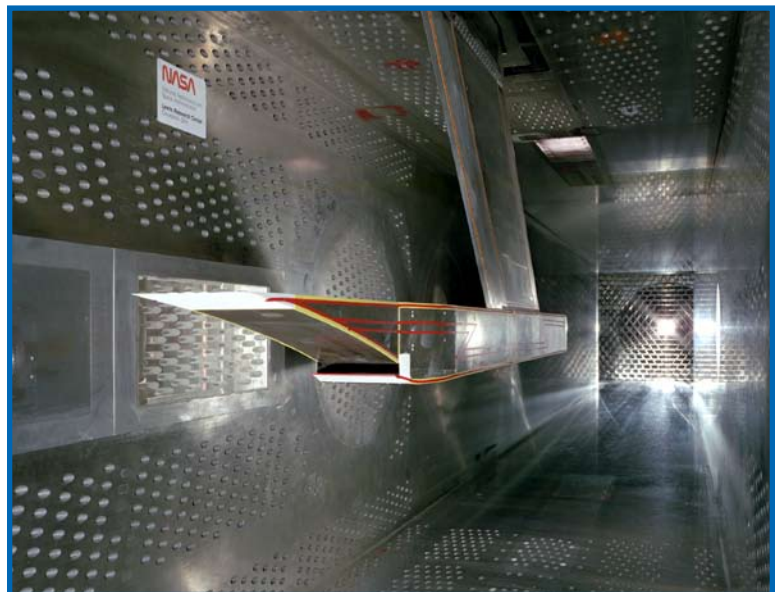
- Calibrated and documented test section conditions
- Real-time data acquisition and display in both alphanumeric and graphical format
- Standardized data acquisition systems at all Glenn wind tunnel facilities
- Integrated data acquisition and model actuation system provides for efficient, cost-effective testing
- Aerodynamic and propulsion cycle operating modes
- Model support systems (hydraulics, exhaust, high-pressure air, fuels, etc.)
- Flow visualization systems—Schlieren, oil flow, and pressure-sensitive paint
- Experienced staff of technicians, engineers, researchers, and operators
- Accommodates government and private industry research programs
- When coupled with NASA Glenn's 10- by 10-Foot SWT, provides aerodynamic and propulsion test capabilities from low-subsonic through high-supersonic Mach range

Commercial Applications

- Aircraft and missile development
- Next-generation launch vehicles
- Jet and rocket engines

Programs and Projects Supported

- National Aerospace Plane (NASP)
- Joint Strike Fighter (JSF)
- Advanced Ducted Propeller (ADP)
- Space Shuttle
- Advanced Tactical Fighter
- High-Speed Civil Transport
- Orbital Space Plane (OSP)



National Aerospace Plane (NASP).

Capabilities

8×6 Supersonic Propulsion	
Test section speed, Mach	0.0 to 0.1 0.25 to 2.0
Simulated altitude, ft	1,000 to 35,000
Test section Reynolds number/ft	3.6×10^6 – 4.8×10^6
Dynamic pressure, lbf/ft ²	200 to 1,340
Test section total temperature, °R	520 to 720
Auxiliary air supply	
At 40 psig	30 lbm/s
At 150 psig	30 lbm/s
At 450 psig	30 lbm/s
Model exhaust	Variable
High-pressure air (2,600 psig) storage, scf	981,000
Fuels	Gaseous hydrogen

Facility Testing Information

<http://facilities.grc.nasa.gov>

Contacts

David E. Stark, Facility Manager

NASA Glenn Research Center

Phone: 216-433-2922

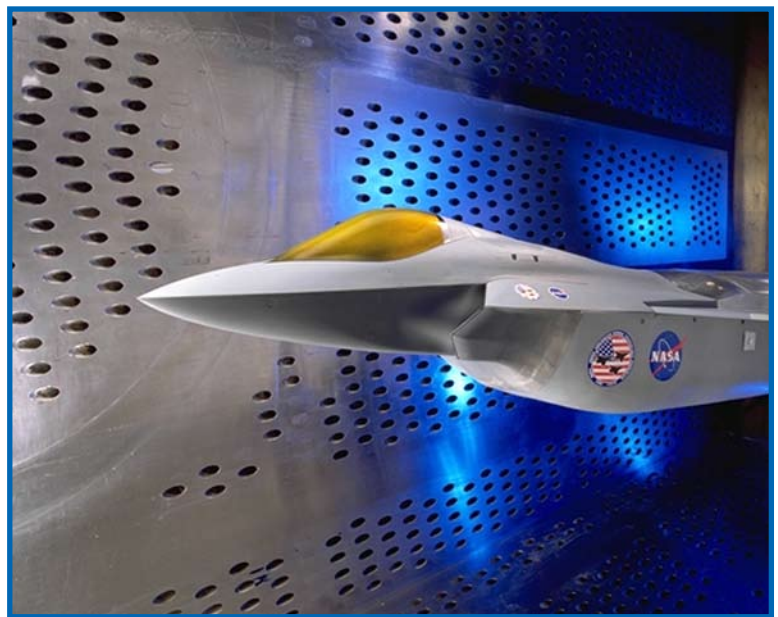
Fax: 216-433-8551

E-mail: David.E.Stark@nasa.gov

Technology Transfer & Partnership Office

E-mail: ttp@grc.nasa.gov

<http://technology.grc.nasa.gov>



Joint Strike Fighter (JSF) model.